www.jard.edu.pl http://dx.doi.org/10.17306/J.JARD.2017.00394

Journal of Agribusiness and Rural Development

pISSN 1899-5241
eISSN 1899-5772

4(46) 2017, 779–786
Accepted for print: 06.11.2017

THE 'ECOSYSTEM SERVICES' CONCEPT IN ENVIRONMENTAL LAW

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Abstract. The purpose of this study is to introduce the 'ecosystem services' concept from the legal perspective, which so far has not attracted as much attention in the Polish scientific community as analyses focused on natural and economic aspects. The concept is strongly promoted as a part of biodiversity and water protection measures which are issues of key importance for the agriculture. This means the agriculture sector will be the first to be affected by legal loopholes in this area. The analysis includes a general attempt to identify the legal grounds for the term and concept of 'ecosystem services' as well as the assessment of the current state of the Polish legislator's works on this matter. At the same time, a confrontation of this concept's theoretical grounds with the underpinning values of environmental law (especially with the 'polluter pays' principle) allows to detail the part of this concept (positive externalities of ecosystem services and PES) which currently poses a real challenge for the Polish legislator and requires a redefinition of current directions for specifying the environmental rights and obligations.

Keywords: sustainable development of agriculture, ecosystem services, environmental law, 'polluter pays' principle, 'beneficiary pays' principle

INTRODUCTION

In accordance with the sustainable development principle, environmental protection is covered by Article 5 of the Constitution of the Republic of Poland of 1997[1], and therefore represents one of the key tasks of the Polish government. As a public task, environmental protection must be comprehended in connection with the term 'environment' which was given a precise normative definition by the Polish legislator[2]. One of the farthest-reaching consequences of implementing the sustainable development principles[3] in Poland is the need to continuously integrate the environmental protection and related issues with current social and economic policies (Article 3, item 50 of the AEL).

Obviously, environmental protection is of an interdisciplinary nature in a broad sense. The preservation of natural assets in their best condition is accompanied

[1] Journal of Laws of 1997, No. 78, item 483, as amended.

[2] See Article 3, item 39 of the Act on Environmental Law of April 27, 2001 (unified text: Journal of Laws of 2017, item 519, as amended, hereinafter referred to as AEL), which defines 'environment' as 'the whole range of natural assets, including those transformed as a result of human activity, in particular the land surface, minerals, waters, air, animals, plants and climate and other elements of biodiversity, as well as the mutual impacts between those elements.'

[3] In the Polish law, 'sustainable development' means 'such socio-economic development which integrates political, economic and social activities while maintaining natural balance and permanence of basic natural processes in order to guarantee the ability to satisfy basic needs of particular communities or citizens of both the existing and future generations' (Article 3, item 50 of AEL).

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by a constant concern for limiting the adverse impacts on such assets (maintenance), given that the primary source of impacts are humans and their activities (preventive protection). At the same time, the existence of humans, including first of all a desirable state of their health, depends directly on access to a high-quality environment. Meanwhile, the environment and its assets (e.g. minerals, biological diversity, waters) constitute an individual (agricultural, industrial) productive resource without which people would be unable to attain a desirable quality of life. All those interdisciplinary (environmental, economic, agricultural, industrial, health and social) issues must finally find their reflection in the law: the basic source of standards of proper conduct which is binding to all members of a society. Today, the environmental law is developed under the pressure of the above factors; there is a constant search for equilibrium between the needs of the environment and those of man. Undoubtedly, the environmental law is also significantly influenced by the European Union and the international environmental law.

Agriculture is one of the basic examples of interdisciplinary areas combining environmental, economic, social and, last but not least, legal issues. The sustainable development principle has a direct impact on today's agriculture, indicating the right and desirable directions and operating methods. The transition from conventional to sustainable agriculture is progressing (Baum, 2008). Thus, agriculture is a good example of challenges involved in the transformation of demands based on natural and economic sciences (Stenseke, 2016) into solutions of legal nature, directly shaping the rights and freedoms of agricultural operators and of members of a society willing to benefit from the environment (e.g. through recreation and tourism). The need to ensure environmental protection in agricultural activities (especially in the context of Poland's membership in the EU) has become an important part of this process which will further grow in importance (Król, 2014) and is already reflected in agricultural law (i.e. 'greening' of the EU Common Agricultural Policy). The legal aspects of environmental protection are only narrowly addressed in the agricultural law's main regulatory area (agricultural relations and farming activities). This is why the ecosystem services concept, revealing in a new and inspiring way the multidimensional aspects of the relationship between agriculture and environment (primarily as regards environment and water protection), must be analyzed within this specific field of law which is directly and fully devoted to the enforcement of the sustainable development principle. Accordingly, preserving the best quality of environmental assets and defining the safe limits for human impact on the ecosystems are the key matters regulated under the part of the legal system referred to as environmental law.

THE ECOSYSTEM SERVICES CONCEPT AS SEEN FROM THE LEGAL PERSPECTIVE: THE POLISH EXPERIENCE

Ecosystem services' have not yet been clearly defined by the Polish legislator. Also, the concept of ecosystem services as a legal institution is not an independent research topic that would be analyzed by the Polish environmental science community. The lack of a direct connection between the law and the ecosystem services concept is not unique to Poland, and is experienced in other legal systems as well (Monteduro, 2013; Olszynski, 2012; Blanco and Razzaque, 2009; Ruhl et al., 2007; Salzman et al., 2001). A thesis is advanced that, in the Polish environmental law, the evidence of the ecosystem services concept might be found in the form of provisions dispersed over specific legislative acts that refer to ecosystem management and its related ecosystem services (Stępniewska et al., 2017). Whilst not questioning those observations, it should be emphasized that such theses are put forward by researchers in fields other than law, whereas lawyers hardly ever refer to that concept in their research.

Therefore, the attempts to define the 'ecosystem services' should be based on works from the domain of natural and economic sciences. Especially helpful for that purpose might be the works carried out under the 'Millennium Ecosystem Assessment' (MEA) initiative, undertaken at the end of 1990s under the aegis of World Resources Institute, World Bank, United Nations Environment Program (UNEP) and United Nations Development Program (UNDP) (Millennium Ecosystem Assessment, 2005a; Lugo, 2008). According to MEA, the term analyzed in this paper is basically characterized as follows: "An ecosystem is a dynamic complex of plants, animals, microbes, and physical environmental features that interact with one another. Ecosystem services are the benefits that humans obtain from ecosystems, and

they are produced by interactions within the ecosystem. Ecosystems like forests, grasslands, mangroves, and urban areas provide different services to society. These include provisioning, regulating, and cultural services that directly affect people. They also include supporting services needed to maintain all other services. Some ecosystem services are local (provision of pollinators), others are regional (flood control or water purification), and still others are global (climate regulation). Ecosystem services affect human well-being and all its components, including basic material needs such as food and shelter, individual health, security, good social relations, and freedom of choice and action" (Millennium Ecosystem Assessment, 2005b).

The approach proposed by MEA, where environment is considered to be a common good and a source of defined categories of services, is currently being developed by various forums for international cooperation. For instance, the following initiatives may be indicated: 1) The Economics of Ecosystems and Biodiversity (TEEB), focused on the notion of the evaluation of economic benefits from biodiversity and on the costs of environmental degradation (TEEB, 2017; Ring et al., 2010); 2) Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (IPBES, 2012; Brand and Vadrot, 2013). As regards the EU, the Mapping and Assessment of Ecosystems and their Services (MAES) initiative may be indicated as a project facilitating the implementation of the EU Biodiversity Strategy to 2020 (MAES, 2017; Maes, 2016), together with the Common International Classification of Ecosystem Services (CICES) under the auspices of European Environment Agency (CICES, 2017).

The ecosystem-based approach to the environment (ecosystem as the subject of protection), which underpins the ecosystem services concept, found its reflection in the environmental law. Undoubtedly, legal regulations adopted based on that approach form a part of the branch of the environmental law (i.e. nature conservation regulations). The identification, monitoring and effective legal protection of ecosystems (especially by creating special zones, e.g. national parks and nature reserves) classified according to various methodologies, is the subject matter of a measure referred to as special nature conservation which extends to the most valuable natural assets (Radecki, 2008). In this field, the Polish solutions are coherent with the United Nations Convention on Biological Diversity (CBD)[4], which made the ecosystem-based approach a framework for international cooperation on nature conservation, thereby deviating from former solutions strictly focused on selected nature conservation issues (e.g., on one type of ecosystem protected under the Convention on Wetlands of International Importance especially as Waterfowl Habitat[5]).

The fulfillment of CBD objectives, strengthened by the EU Biological Strategy to 2020[6], results in implementing the term of 'ecosystem services' into the Polish legal system. However, for the Polish administration, it is above all a challenge for the years to come (Minister Środowiska, 2014) rather than a subject of in-depth legal analyses resulting in an actual incorporation of ecosystem services into the logic of the nature conservation law or, more generally, into the environmental law. As shown by the Program for the Protection and Sustainable Use of Biodiversity together with the Action Plan for 2015–2020[7], the challenge is to maintain and recover the ecosystem functions which are the source of services for humans (objective D of the Program). That objective is to be achieved by following the two fundamental guidelines: 1) to give ecosystems a socio-economic value, 2) to introduce the concept of green infrastructure as a tool for maintaining and strengthening the existing ecosystems and their services. The first guideline should result in elaborating: the national catalog of ecosystems and related services together with a map of ecosystems; national regulations for the valuation of ecosystem services; and national regulations for the incorporation of the ecosystem services valuation into accounting and reporting systems. The guidelines formulated as above confirm not only that the current works of the Polish environmental protection authorities on the notion of 'ecosystem services' are at an initial stage, but also that they mainly deal with non-legal (natural and economic)

[4] Signed in Rio de Janeiro on June 5, 1992, Journal of Laws of 2002, No. 184, item 1532.

[5] Signed in Ramsar on February 2, 1971, Journal of Laws of 1971, No. 7, item 24.

[6] Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: Our Life Insurance, Our Natural Capital: an EU Biodiversity Strategy to 2020 (COM/2011/0244 Final).

[7] Resolution of the Council of Ministers No. 213 of November 6, 2015, Official Journal of Poland of 2015, item 1207.

aspects. The truth is that the second guideline of objective D (implementation of the green infrastructure concept) will need to be combined with legal changes in spatial planning and management or (in the longer term) with amendments to provisions on environmental impact assessment (the inclusion of ecosystem services as an assessment element). However, it can be stated today that the guidelines are too conservative in their legal aspect, and fail to properly address the requirement to insert the ecosystem service concept directly into the logic of the environmental law.

THE 'POLLUTER PAYS' PRINCIPLE VERSUS THE 'ECOSYSTEM SERVICES' CONCEPT

When trying to asses the current ability to comply with that demand, it should be reminded first that the environmental law instruments are developed in the spirit and within the limits of values that underpin the law, i.e. general principles. In the case of the issue discussed in this paper, two general principles of environmental law, rooted in the sustainable development principle, are of considerable significance, i.e. the complexity principle and the 'polluter pays' principle. According to Article 5 of AEL, the complexity principle requires that if one or more natural assets are covered by protective measures, the protection of other assets should be taken into account. Defined as above, this 'complexity' fully complies with the ecosystem-based approach. However, if one agrees that the ecosystem services concept should, first of all, combine biodiversity with the country's economic development (Minister Środowiska, 2014), it should be specifically noted that the greatest value that may be associated with ecosystem services today is the 'polluter pays' principle.

According to Article 7 of AEL, the 'polluter pays' principle requires that whoever may cause pollution of the environment should bear the cost of prevention of such pollution (Section 2) and whoever causes pollution of the environment should bear the costs of elimination of such pollution (Section 1). Pursuant to this principle, entities who may adversely impact the environment must participate financially in the environmental protection by incurring two types of environmental costs: those involved in preventive actions and compensations. Therefore, the legislature and executive must adopt adequate legal solutions enabling the effective imposition of charges, especially in order to prevent the polluter from escaping the environmental costs by spreading them over the entire society. The above is fully applicable to farmers.

The objectives of this principle may be fulfilled by 'allocating' the environmental costs to an environmental user by means of various legal instruments (e.g. permits, emission and product standards, emissions trading schemes, fees and taxes, legal liability) (OECD, 1992). The estimation of a nature asset's value and the appraisal of environmental damage takes place primarily in the legal dimension, pursuant to the 'pollutant pays' principle. It reflects the financial aspect of the country's current legally binding environmental protection level. In practice, that aspect is determined by market prices of environmentally-friendly technology and by other preventive measures. The related costs are borne directly by the obliged entities in order to comply with legal requirements, because otherwise they are not allowed to legally start their business or to continue it later (the technology upgrade obligation). The other part are public impositions which entities must pay if their business impacts a natural asset. Increasingly often, the Polish legislator imposes another type of environmental cost beside public impositions, i.e. a guarantee set up to meet future claims for environmental damage (usually in the form of an insurance policy, a bank guarantee or an escrow account) and the so called reclamation fund (e.g. in the form of a special bank account) to cover the environmental compensation after the termination of activities. The abovementioned elements are considered to be fixed, because generally the operators know them in advance and must consider them in their total economic costs. In turn, the environmental costs are variable in relation to the liability for damaging protected goods (environmental damage, breach of conditions provided for in the permits, activities that impact the environment without a required permit), which will be borne by the operators if they fail to properly meet their legal obligations.

The 'polluter pays' principle can be seen as a legal answer to the problem of providing proper environmental protection against the 'externalities' of human activities. 'Externalities' refer to costs and benefits of human activities which affect the environment while not being transferred by the price mechanism to the economic transactions between actors. Two kinds of externalities can be distinguished: negative externalities (costs, for

example pollution prevention expenditure) and positive externalities (benefits, for instance the aesthetic value of a diverse agricultural landscape) (FAO, 2010; OECD, 1992). This principle is helpful in setting the rules of responsibility for negative externalities ('internalization' of environmental costs of the polluter). The 'externalities' issue is of importance for the 'ecosystem services' concept. Those services, created directly by ecosystems and by human environmental management, are primarily associated with positive externalities. In turn, negative externalities are connected to human activities that degrade the environment which at the same time (having in mind that the environment is the source of the services) restrict the ability to deliver ecosystem services of adequate quality in adequate quantities. In both cases, the externalities of those services should be visible for market actors and should be paid for (through different market-based instruments) by the generating party (TEEB, 2014; Froger et al., 2015).

It can be thus observed that the abovementioned 'allocation' of environmental costs stemming from negative externalities combines the 'polluter pays' principle with the ecosystem services concept. While implementing this principle, every legal instrument mentioned above (permits, standards, charges and liability) also limits the risk of adverse impact of polluters (including farmers) on the environment, which is the source of ecosystem services. Precisely in that sense, the EU legislator combines water services with the 'polluter pays' principle. Item 38 of the preamble to the Frame Water Directive includes the following provision: "The principle of recovery of the costs of water services, including environmental and resource costs associated with damage or negative impact on the aquatic environment should be taken into account in accordance with, in particular, the polluter-pays principle."[8] Therefore, it seems that the introduction of the ecosystem services concept to the environmental law, to the extent of these common grounds, has already taken place at least indirectly. Now, its theoretical justification needs to be properly highlighted in the context of the axiology (general principles) of environmental law.

[8] Directive 2000/60/WE of the European Parliament and of the Council of October 23, 2000 establishing a framework for Community action in the field of water policy, Official Journal L 327, 22.12. 2000, p. 1–73, as amended.

On the other hand, presently, the environmental law does not propose any cohesive approach to the second issue, the positive externalities of ecosystem services. Consequently, the same is true for PES (payments for ecosystem services).

PAYMENTS FOR ECOSYSTEM SERVICES (PES) AND THE 'BENEFICIARY PAYS' PRINCIPLE

PES are defined as "arrangements between buyers and sellers of environmental goods and services in which those that pay are fully aware of what it is that they are paying for, and those that sell are proactively and deliberately engaging in resource use practices designed to secure the provision of the services" (Global Environment Facility, 2014). The following PES systems may be identified: 1) public payment schemes (government pays land or resource managers to enhance ecosystem services on behalf of the wider public); 2) private payment schemes (self-organized private deals in which beneficiaries of ecosystem services contract directly with service providers); 3) public-private payment schemes (both government and private funds pay land or other resource managers for the delivery of ecosystem services) (UK Department for Environment and Food and Rural Affairs, 2013). The orientation of environmental protection through the use of PES means a fundamental change in the previous logic of environmental protection. The existing 'polluters' (including arable land owners) are starting to be looked at from a completely new perspective, i.e. as managers of resources they control (the ecosystem located on their property) who consciously take account of sustainable development requirements in their processes. By making such a contribution to the recovery or enhancement of a given ecosystem, land owners become entitled to a prorated reimbursement of costs incurred for this purpose, i.e. to 'payments' from the government or other society members who access a high-quality environment (Salzman, 2006). Contrary to the 'polluter pays' principle, the costs of environmental enhancements are borne by beneficiaries (the 'beneficiary pays' approach) 'paying' for ecosystem services related to ecosystems managed by land owners.

Thus, PES are an instrument of great support for sustainable agriculture. From the legal point of view, PES have not been directly noticeable in the Polish

environmental law, similarly to the ecosystem services concept. In the agricultural law, the components of the EU CAP undergo the greening process (direct payments for agricultural practices beneficial for the climate and the environment) (Żmija, 2011). Nonetheless, the support for farmers' income remains the key priority of this system and of the related law, and does not directly address the question of evaluation and internalization of positive externalities of ecosystem services. Article 36, Section 3 of the Nature Conservation Act[9] of April 16, 2004 concerning Natura 2000 areas can be used as an 'environmental' example. The Polish legislator provides for a solution similar to payments effected within PES. Pursuant to this Article, if business, agricultural, forest, game or fishing activities need to be aligned with protection requirements for a Natura 2000 area which is not covered by support programs compensating for reduced profitability, then a regional director for environmental protection and the owner or holder of that area (except for State Treasury estate managers) may enter into an agreement which sets out the list of necessary actions, methods and deadlines for the completion thereof, the conditions and deadlines for the settlement of payments for completed actions, and the amount of compensation for incomes lost due to the imposed limits.

The application of PES as an individual legal instrument of environmental protection seems inevitable in the light of the above objectives of international, European and Polish biodiversity protection policies. At the same time, it poses several challenges related, first of all, to the settlement of economic and, subsequently, legal dilemmas. It is pointed out that the success of PES from an economic perspective depends on the following conditions: 1) a conservation program must either restore a degraded ecosystem or reduce the loss of an intact one; 2) this positive ecosystem change must increase the supply of an ecosystem service; 3) the increased supply must occur within the near term; 4) the service must be economically valuable (Vincent, 2012). Attention is also paid to the fact that the establishment and proper functioning of the ecosystem services market that takes into account the desirable equilibrium between the needs of the environment and agriculture development is unlikely without a shift of awareness of service 'suppliers' and 'beneficiaries' (Ruhl, 2008). From the legal perspective, apart from the identification of the ecosystem services concept and the PES system, a few matters that require modification are pointed out, including: 1) landownership and other material laws involved in the valuation of property and related laws applicable to ecosystem services, 2) spatial planning and management taking into account the directions for the protection and enhancement of ecosystems as service resources (including the use of geoinformation), 3) alignment of the law of obligations (contract law) with PES requirements along with the standardization of monitoring measures of the proper performance of PES contracts (UNECE, 2014). In Poland, as mentioned earlier, only the following works are going to be carried out in the 2015–2020 period: creation of a national catalog of ecosystems and their services; establishment of national rules for the appraisal of ecosystem services, and national rules for the inclusion of ecosystem services appraisal into the accounting and reporting systems. This has some potential from the legal perspective, as it will result in setting an essential point of reference for the implementation of the ecosystem services concept and of the PES system as independent legal architectures in the Polish law. However, it is unlikely for the two solutions (especially PES) to be in actual use for the needs of sustainable agriculture in Poland by 2020.

CONCLUSIONS

Perceiving the environment as a source of ecosystem services poses new challenges, including legal ones. While there are some realistic chances for success, the complexity of the issue of ecosystem services slows down the potential changes in that area. The Polish public administration has only just started the first phase of preparatory legal and technical works. Nevertheless, even at this stage, the already identified connections between that concept and the 'polluter pays' principle (externalities) can be put into legal form for the purposes of the environmental law.

For the agriculture, the consequences of this legal research are twofold. On the one hand, farming activities are rapidly evolving in accordance with the sustainable development directions. Thus, they are now fully subjected to the 'polluter pays' principle which in turn, already now, leverages some features of the 'ecosystem services' concept. On the other hand, the recognition of a connection between that concept and the new principle

[9] Unified text: Journal of Laws of 2016, item 2134, as amended; hereinafter referred to as NCA.

of environmental law ('beneficiary pays') may have serious consequences for the agriculture. In the future, a farmer who has been only a 'polluter' until now, will be eligible for a new legal status of the 'provider' of ecosystem services (with all the consequences, including PES).

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